

The Effectiveness of Emotional Schema Therapy on Neuroticism and the Life Style of Cardiovascular Patients

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ABSTRACT

BACKGROUND AND OBJECTIVE: Neuroticism and extroversion have a high and positive relationship with psychological problems such as anxiety and depression. Since cardiovascular diseases are also considered as psychotic that can be reduced by modifying lifestyles and changing high risk behaviors this study was conducted to compare the effectiveness of emotional schema therapy on neuroticism and lifestyle of cardiovascular patients.

METHODS: This cross-sectional study was performed on 30 patients with cardiovascular disease referred to Rouhani Hospital in Babol who were randomly divided into two groups of emotional schema therapy and control. The emotional schema therapy protocol was performed during 12 weekly sessions of 2 hours. Using NEO-FFI (score 12-60) and Health Promoting Lifestyle (HPLPII) questionnaires (score 48-192), before the intervention, after the intervention and one month later, the two groups were evaluated and compared.

FINDINGS: There was no significant difference between the two groups in terms of age and sex. The mean scores of neuroticism before and after the intervention in the control group were 38.93 ± 7.31 and 37.80 ± 4.63 , respectively, and in the emotional schema therapy group were 37.73 ± 6.94 and 32.53 ± 6.75 , respectively. The mean score of promoter lifestyle in emotional schema therapy group before and after the intervention was 113.13 ± 28.25 and 138 ± 32.27 , respectively ($p < 0.05$). Implementation of emotional schema therapy had a significant effect on Neuroticism (6.95, 0.014 and 0.205) and lifestyle (11.67, 0.002 and 0.302) and led to the reduction of Neuroticism and the promotion of lifestyle.

CONCLUSION: The results of this study showed that emotional schema therapy can be an effective intervention in reducing neuroticism and promoting lifestyle in cardiovascular patients.

KEY WORDS: Emotional Therapy Schema, Neuroticism, Life Style.

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Introduction

Cardiovascular disease is the most common cause of death in industrialized countries and 1.3 people over the age of 35 die from heart disease, especially coronary artery disease (1). In Iran, coronary artery disease has been on the rise and in recent years, the age of onset of this disease has decreased dramatically (2). The most important risk factors for cardiovascular disease are poor nutrition, sedentary lifestyle, smoking, obesity, high blood pressure, diabetes and hyperlipidemia, all of which are rooted in poor lifestyle patterns, such as lifestyle modifications and Changes in high-risk behaviors can reduce the prevalence of this disease (3).

Experience of stressful life events has been introduced as an important risk factor for Coronary Heart Disease (CHD). People experience a large number of stressful and negative events before the onset of CHD (4). In one study, it was shown that patients with CHD experience more stressful life events (5). Stress-induced physiological changes that mediate between stress and disease have a direct effect on the coronary arteries and heart muscle, such as increased blood pressure and heart rate, increased blood clotting, increased hormones such as adrenaline in response to stress, and increased immune cell activity on the damaged covering surface of the arteries, which cause the walls of the arteries to tighten, that provide the basis for plaque formation (6, 7).

Calvete et al. and Halvorsen et al. believe that Neuroticism or Negative Emotionality is a general vulnerability or vulnerable mood that can lead to schema formation. When an unpleasant emotion such as sadness, anger, or anxiety is activated, a person may react to that emotion with negative thoughts and behaviors that can underlie vulnerability to a variety of illnesses (8, 9). Despite rapid diagnostic and therapeutic advances, one-third of patients with myocardial infarction still die. These diseases impose huge costs on the health care systems of countries. However, cardiovascular diseases are one of the most preventable non-communicable diseases in humans (10).

A healthy lifestyle is a valuable resource for reducing the incidence and severity of diseases and their complications and is a way to improve health and quality of life and adapt to stress (11). The results of studies have shown that cardiovascular disease cannot be treated with medication alone and other treatments should be used, and in general, there should be harmonious changes in the psychological and physical

dimensions of lifestyle (12). JamshidZehi ShahBakhsh and colleagues in their study stated that the factor that leads to anxiety, and panic in patients with mitral valve prolapse, is related with the type of attitude of these patients and the interpretation of physical symptoms such as chest pain, shortness of breath and palpitations as an unpredictable and uncontrollable phenomenon (13). Neuroticism and extroversion are highly associated with psychological problems such as anxiety and depression (12). Therefore, training in behavioral techniques reduces anxiety and stress and is a useful way to reduce behavioral disorders (14).

Emotions play an essential and effective role in the development of psychiatric diseases, especially coronary heart disease. Emotions are a chain of automatic actions that, due to their emotional nature, reach their underlying chain, ie emotional schemas (15). Because cardiovascular disease is a psychiatric disorder, a combination of biological and psychological factors must be considered in examining the causes of heart problems. Psychological factors play a role in both the development and exacerbation of heart disease (16).

In the emotional schema model, individuals differ in the interpretations and evaluations they make of their emotional experience and may try different strategies to deal with their emotions. In fact, this model emphasizes how people conceptualize their emotional experience and use behavioral and interpersonal strategies in response to their emotional experience (17).

Because in many chronic patients, such as cardiovascular patients, their mental health is neglected and in the course of their treatment, doctors pay attention only to the physical aspects and use common techniques in medicine to control disease and then the improvement of the patient's physical condition. Even the family members of the sick person, in most cases, consider the person's problem as his physical problems and think that by following the process of physical treatment of the patient, the person returns to normal life, while due to the condition of cardiovascular patients that causes they are only allowed to perform limited activities, these patients face many long-term mental health problems that severely affect their physical health as well.

Due to the importance of "neuroticism" and "lifestyle" among cardiovascular patients, this study was conducted to compare the effectiveness of emotional schema therapy on neuroticism and cardiovascular patients' lifestyle.

Methods

This cross-sectional study was approved by the Ethics Committee of Islamic Azad University, Sari Branch with the code 1388.113 IR.IAU.SARI.REC. It was performed on 30 patients with cardiovascular disease referred to Rouhani Hospital in Babol who were randomly divided into two groups of emotional schema therapy and control. The sample size was determined based on previous studies (18).

The two groups were considered equivalent in terms of demographic variables such as gender, marital status, age, duration of illness, etc. After obtaining written consent from patients, if they are between 20-50 years old, have no other chronic diseases such as diabetes, hepatitis, etc., the level of education at least a diploma, were included in the study. People under the age of 20 and over 50, having chronic diseases such as diabetes, hepatitis, etc., having a history of mental illness with the approval of the treating physician and refusing to continue cooperation at any stage of the study was excluded from the study. The emotion schema therapy protocol was performed in 12 sessions of 2 hours per week and participants with the NEO-FFI short-term Neuroticism questionnaire with a score of 12-60 and the Health Promoting Lifestyle Questionnaire (HPLPII) with a score of 48-192, they were evaluated before the intervention, after the intervention and one month later (19). The steps of implementing emotional schema therapy method were applied based on the treatment method mentioned in reference books (19).

Session 1: Assessment and evaluation.

Session 2: Explain about the treatment and identification of emotional beliefs and ...

Session 3: Normalizing excitement and its nature.

Session 4: Increasing awareness of the complexity of excitement.

Session 5: Creating the power to endure emotions.

Session 6: Categorizing emotion and relating excitement to higher values.

Session 7: Accepting excitement and creating an atmosphere of excitement.

Session 8: Validation of excitement.

Sessions 9 and 10: Examining the origins of negative beliefs that have their roots in childhood.

Session 11 and 12: Presenting a new pattern and specific instructions to reduce recurrence.

Data were collected using the NEO-FFI five-factor personality questionnaire and the Health Promoting Lifestyle Questionnaire (20, 21). The NEO-FFI five-factor personality questionnaire has five scales:

neuroticism, extroversion, flexibility, pleasantness and responsibility, and each of the following include 12 questions. However, considering that in the present study, only the neuroticism dimension was considered, 12 questions related to this scale were used to determine the effectiveness of executive protocols on the two groups (20). Its reliability for neuroticism is 0.90, extroversion is 0.78, openness to experiences is 0.76, harmonization is 0.86 and conscientiousness is 0.90 (22).

The Health Promoting Lifestyle Questionnaire includes 54 answer packets based on a four-point Likert scale, the Questionnaire measures Six Dimension of Nutrition, Exercise, Health Responsibility, Stress Management (Identifying Stress Sources and Stress Management Measures), and Interpersonal Support (maintaining relationships with feelings of intimacy), self-actualization (having a sense of purpose, seeking to progress as an individual, and experiencing self-awareness and satisfaction), nutrition (having a diet pattern, and choosing food with 6 questions), exercise (following a regular pattern of exercise with 5 questions), responsibility for health (10 questions), stress management (identifying sources of stress and stress management actions with 7 questions), interpersonal support (maintaining relationships with feelings of intimacy with 7 questions), self-actualization (having a sense of purpose, seeking to progress as an individual, and experiencing self-awareness and satisfaction with 13 questions). Score 54 to 81: unfavorable lifestyle, score 81 to 135: average lifestyle and score above 135: desirable lifestyle (19).

In the study of Mohammadi Zeidi et al., the validity and reliability of the questionnaire were confirmed (21). Data were analyzed using SPSS software and Shapiro-Wilk test; Chi-square, analysis of variance and analysis of covariance and $p < 0.05$ was considered significant.

Results

In the control group, there were 6 males (40%) and 9 females (60%) and in the experimental group, 7 males (47%) and 8 females (53%). In the control group, 4 were single (27%) and 11 were married (73%) and in the experimental group, 4 were single (27%) and 11 were married (0.53%). In the control group, the mean age was 44.27 ± 7.94 years and in the experimental group, the mean age was 43.47 ± 8.18 years. In the control group, 7 individuals had diplomas and less (47%), and in the experimental group, 5 individuals had diplomas and less

(33%), and the rest had university degree. In the control group, the mean duration of the disease was 5.80 ± 3.38 years and in the experimental group the mean was 5.73 ± 2.43 years. There was no significant difference between gender, marital status and education, age and duration of illness in the two groups. The mean score of neuroticism in the control group before and after the intervention was 38.93 ± 7.31 and 37.80 ± 4.63 , respectively, and in the emotional schema therapy group was 37.73 ± 6.94 and 32.53 ± 6.75 , respectively. The mean of neuroticism decreased after the intervention in the emotional schema therapy group. The mean scores of neuroticism after the intervention were significantly different in the control group and the emotional schema therapy group ($p < 0.05$). The mean score of the promoter lifestyle before and after the intervention was 114.53 ± 34.49 , 113.33 ± 31.12 in the control group, and 113.13 ± 28.25 and 138 ± 32.27 in emotional schema therapy group (Table 1). There was a significant difference between the mean scores of the promoter lifestyle after the intervention in the control group and the emotional schema therapy group ($p < 0.05$) (Table 2). The promoter lifestyle scores before the intervention

were effective on the promoter lifestyle score after the intervention. The group variable (control and emotional schema therapy group) which is included in this model as a fixed variable is significant according to the F value which was equal to 11.67, ie after removing the effects of promoter lifestyle scores before the intervention, there was a significant difference between the mean scores of the post-intervention promoter lifestyle in the control group and the emotional schema therapy group. The mean of the promoter lifestyle variable increased after the intervention in the emotional schema therapy group (Table 3).

Emotional therapy schema on Neuroticism (6.95, 0.014 and 0.205), Inefficient attitudes (14.72, 0.001 and 0.353) and lifestyle (11.67, 0.002 and 0.302), had a significant effect and led to the reduction and improvement of these two variables, respectively. There was a significant difference between the mean scores of inefficient attitudes after the intervention in the control group and the emotional schema therapy group, the mean variable of inefficient attitudes after the intervention in the emotional schema therapy group decreased.

Table 1. Comparison of mean scores of promoter lifestyle and different areas of emotional schema therapy in control and intervention groups

Variable	Group	Control Mean \pm SD	Emotional therapy schema Mean \pm SD
Neuroticism			
Before		38.9 \pm 7.31	37.73 \pm 6.94
After		37.80 \pm 4.63	32.53 \pm 6.75
Inefficient attitudes			
Before		160.27 \pm 28.32	162.27 \pm 22.57
After		157.67 \pm 27.73	123.53 \pm 32.44
Promotional lifestyle			
Before		114.53 \pm 34.49	113.13 \pm 28.25
After		113.33 \pm 31.12	138.00 \pm 32.27

Table 2. Analysis of covariance related to research variables between the two groups of emotional schema therapy and control

Sources	Total squares	Degrees of freedom	Average squared	F	Sig	Eta Squared
Neuroticism						
Before	463.98	1	463.98	21.55	0.0009	0.345
After	1532.16	2	766.08	35.59	0.0009	0.635
Promotional lifestyle						
Before	23256.99	1	23256.99	57.67	0.0009	0.584
After	5519.16	2	2759.58	6.84	0.003	0.250

Table 3. Analysis of covariance of promotional lifestyle variables in two groups of control and emotional schema therapy

Sources	Total squares	Degrees of freedom	Average squared	F	Sig	Eta Squared
Corrected model	21201.414	2.00	10600.71	24.89	0.0009	0.648
Fixed effect	2840.20	1.00	2840.20	6.67	0.016	0.198
Promotional lifestyle before	16638.08	1.00	16638.08	39.07	0.0009	0.591
Group	4970.04	1.00	4970.04	11.67	0.002	0.302

Discussion

In this study, emotional schema therapy had a significant effect on neuroticism, inefficient attitudes and lifestyle of cardiovascular patients and led to the reduction and improvement of these three variables, respectively; because the research that has been done on the effectiveness of emotional schema therapy on Neuroticism is limited. Therefore, comparisons were made with the rest of the field. Bayazi et al. in examining the relationship between emotional schemas with anxiety and depression and coping styles in coronary heart disease showed that there is a positive and significant correlation between logical-emotional schemas and problem-oriented coping styles and there is a negative and significant correlation between blame-emotional schemas of and problem-oriented coping style but none of the emotional schemas predict problem-oriented coping style (23).

The results of Morad Asli et al. showed that schema therapy was effective on increasing lifestyle self-efficacy related to overweight and weight loss in the experimental group (24). In the study of Gliniski et al., the treatment protocol was associated with a significant reduction in neuroticism and there was significant progress in terms of trust in agreement (25).

The results of the present study are consistent with the results of the above mentioned researches and are in the same direction. Explaining the results, it can be said that emotional therapy schema is effective on coping strategies with undesirable emotions. Halvorsen et al. believe that neuroticism or negative emotion is a factor of general vulnerability or vulnerable mood that can lead to schema formation. When an unpleasant emotion such as sadness, anger, or anxiety is activated, the person may react to that emotion with negative thoughts and behaviors that can underlie vulnerability to a variety of illnesses (9).

In the study of Eshraghi et al., the neuroticism index was significantly higher in patients with myocardial infarction (26). In a study conducted by Mohammadi et al., the results showed that emotional schema therapy can be an appropriate and effective method in improving psychological distress and difficulty in

regulating the emotions of divorced women (27), which is similar to the results of this study. Although in our study men and women with heart disease were studied, in the study of Mohammadi et al. divorced women were examined, but the results were similar. In a study conducted by Shiri et al., the results showed that there was a significant difference between the two groups in terms of inefficient attitudes toward choosing a spouse and its components (lovemaking, pivotal experience, idealism, antagonism, optimism) (28).

According to the obtained results, it can be said that schema therapy is an effective approach to reduce the inefficient attitude towards choosing a spouse for female students. The role of emotions and emotion processing strategies are prominent in the emotional schema therapy model. This model is based on the fundamental principle that emotions such as fear, sadness, anxiety, and loneliness are universal experiences, but there are many individual differences in the conceptualization of emotions and coping strategies. In a study conducted by De Santiago-Treviño et al. in search of effective treatment tools for non-epileptic seizures, the results indicate a positive effect and improve the quality of life in these patients (29).

The relationship between neuroticism, depression, and cardiovascular disease is very complex, Almas et al. indicated. They concluded that neuroticism increased the risk of cardiovascular disease in depressed people. There is also a synergistic interaction between neuroticism and depression in predicting the future risk of cardiovascular disease (30). They examined depressed and neurotic patients. But this was not the case in this study.

Overall, the results of this study showed that emotional schema therapy can be an effective intervention in reducing neuroticism and promoting lifestyle in cardiovascular patients.

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